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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

VIA FAX: 571-273-8300

Erik Gydesen

Serial No.: 10/593,454

Art Unit: 4193

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Examiner: Alexander C. Witkowski

For: CLEANING AN INK CHAMBER OF A PRINTING UNIT

APPEAL BRIEF

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REAL PARTY IN INTEREST

The party named in the caption of the brief, inventor or applicant (if assigned), is the real party in interest in this case.

RELATED APPEALS AND INTERFERENCES

No other related appeal or interference is pending.

STATUS OF CLAIMS

Claims 1-16 were finally rejected over art of record.

Claims 1-16 are the subject of this appeal, i.e., the final rejection of claims 1-16 is being appealed to the Board of Patent Appeals and Interferences.

A copy of the appealed claims 1-16 is appended hereto in the CLAIMS APPENDIX.

STATUS OF AMENDMENTS

No amendments were presented after the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention (specification pages 4-13, Figures 1-6) defines a method for cleaning the ink chamber of a printing unit, preferably a chamber in a doctor blade, by spraying pressurized cleaning liquid into the chamber through at least one cleaning nozzle.

Fig. 1 shows a doctor blade 1 intended for flexographic printing. A hydrophore 2 is connected with an injection opening 4 in the chamber via a connecting line 3. In line 3 is inserted a valve 5 connecting the hydrophore with the chamber 1. In the hydrophore is provided cleaning liquid 6 and air 7. The hydrophore is connected with a standard pressurised air system and a high-pressure liquid pump 9. The high-pressure liquid pump connects the hydrophore 2 with a storage tank 10 which is provided with insulation 11 and a heater 12. Via a valve 13, the storage tank 10 is connected to a supply line 14 for cleaning liquid or cold/hot water.

Alternatively, the connection line 14 may be connected to an external liquid supply system, as, for example, water taps (specification page 11, lines 12-20).

Fig. 1 shows that the doctor blade 1 is also connected with an ink supply system generally designated 16. Thus, ink is conducted via an inlet 17 for circulating through the chamber to be returned via an outlet 18 from the doctor blade. The system for supplying ink includes valve arrangements 19, 20 for switching inks and pumps 21, 22 for supplying and returning inks. Ink is provided from ink storage 23 and is supplied via valves 24, 25. By means of the pump 22, return ink or flushing liquid may be conducted to a drain 27 via a valve 26 (specification page 11, lines 22-28).

The system for ink supply is integrated with the system for providing cleaning liquid, including the tank 10 with heating means and the high-pressure pump 9. The hydrophore in Fig.

1 is shown placed outside a cabinet 28. The hydrophore 2 is shown schematic as a separate chamber, but, may be provided as a longitudinal tubular duct disposed immediately behind the doctor blade 1 (specification page 11, lines 30-34). This tubular duct is preferably provided in a support beam for the doctor blade and provided with a plurality of connecting lines 3 for a plurality of inlet openings 4 (specification page 12, lines 1-2).

In cabinet 1 there is furthermore shown (schematic illustration) an arrangement 29, where a soap container 30 is connected to container 32 via a pump 31. The container 32 is used for cleaning suction lances which are used for sucking up ink from the ink container (specification page 12, lines 4-7).

Fig. 2 shows a nozzle body in the shape of a mushroom-shaped plug 40 having a stem 41 which is provided with a thread 42 for inserting in a hole in the wall of a doctor blade or in an opening in a bushing which is inserted in such a doctor blade for forming a cleaning nozzle 33. The plug 40 has furthermore a circular domed hat or top 43 of an elastic, resilient plastic material (specification page 12, lines 11-13).

The top 43 has a radial inner surface 44 and a radial outer surface 45 which are disposed in planes perpendicularly to a longitudinal axis 46 through the stem 42. The surface 44 is displaced by the distance 47 relative to the surface 45. When the plug 40 is screwed into a wall in the ink chamber with the surface 44 in abutment against the sidewall, the surface 45 will be pressed back and thereby forms a resilient abutment against the chamber wall. Intermediate areas 48 with a cutout are provided between the inner and outer surfaces 44, 45. Opposite this cutout injection openings are provided, as shown in Fig. 4 (specification page 12, lines 13-20).

The top of the domed hat 43 includes a cutout 49 intended for engagement with a screw driver or other tool for fastening or loosening the plug (specification page 12, lines 23-24).

Fig. 3 shows a perspective view of the plug 40 which illustrates that it is made with a circular shape of the domed top 43. An annular abutment face 45 formed by the outer surface is thus achieved. This surface will, by abutment against the chamber wall, block injection openings as clearly shown in Fig. 4 (specification page 12, lines 26-29).

Fig. 4 shows a cross-section through a doctor blade 1. The plug 40 is placed in a bushing 50 so that together they may form the cleaning nozzle 33. The bushing 50 has a central opening 51 for receiving the stem 41 of the plug 40 and injection openings 51 disposed around the opening 51 at a position within the area of the plug (specification page 12, lines 31-34).

The injection openings 52 communicate with a chamber 53. Via a connecting line 54, the chamber 53 is connected with a hydrophore 2 formed as an elongated chamber 56 within a supporting profile 55 disposed behind the doctor blade 1, and where the chamber 56 is partly filled with cleaning liquid at a time immediately before activating a valve 57 in the connecting line 54. Connections between the cleaning nozzle and the hydrophore are possible (specification page 13, lines 1-6).

Fig. 5 shows a cross-section through a further embodiment of a doctor blade 1. In this doctor blade, the cleaning nozzles are omitted for the sake of clarity. An inlet opening 58 for ink and an outlet opening 59 for ink are shown in the doctor blade 1 (specification page 13, lines 8-10).

As shown in Fig. 6, a number of inlet openings 58 are placed in a row. These inlet openings are mutually connected with a line or boring 60 which is connected with the ink inlet

17. Also shown are a number of inlet openings 59 which are mutually connected with a line or a duct 61 connected with the ink outlet 18 (specification page 13, lines 12-16).

In operation, ink flowing in through an inlet opening 58 will be conducted to an obliquely opposite outlet opening 59 via a single passage through the chamber as indicated by 62. The ink will thus have a relatively short retention time in the doctor blade and therefore a very brief contact with the rotating screen roller, whereby the risk of admixture of air is minimized. Thus, the quality of the ink is improved, compared to the process of ink circulating from one end of the chamber to an outlet at the other end of the chamber resulting in contact with the rotating screen roller a number of times (specification page 13, lines 18-25).

Furthermore, the inlet openings 58 act as cleaning nozzles by cleaning the chamber when the ink supply system is flushed (specification page 13, lines 27-28).

The openings 58, 59 have different mutual spacing and different diameter in order to correspond to pressure drop and ensure a uniform flow over the entire length of the chamber (specification page 13, lines 30-32).

GROUNDS OF REJECTION

I. .Claims 1 , 2, 3, 8, 9, and 12 have been rejected under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130).

II. Claim 4 has been rejected under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) and Kersch et al. (US 6,755,130) and further in view of Yamaguchi et al. (US 6,623,564).

III. Claim 5 has been rejected under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) and Kersch et al. (US 6,755,130) and further in view of Steenbergen (US 6,602,566).

IV. Claims 6, 10, and 11 have been rejected under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) and Kersch et al. (US 6,755,130) and further in view of Figliola et al. (US 3,662,781).

V. Claim 7 has been rejected under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016), Kersch et al. (US 6,755,130) and Steenbergen (US 6,602,566) and further in view of Figliola et al. (US 3,662,781).

VI. Claims 13 – 16 have been rejected under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) and Kersch et al. (US 6,755,130) and further in view of Mayer et al. (US 6,964,792).

ARGUMENTS

Allowance of all claims is requested. All of the claims distinguish the invention from the references.

The present claims are patentable under 35 U.S.C. 103(a).

In considering the patentability of the present invention, it is requested that the Board consider the invention as a whole, consider the scope and content of the prior art as a whole, consider the differences between the claims at issue and the prior art, and consider the level of ordinary skill in the art to which the invention pertains at the time the invention was made.

Graham v. John Deere Co., 148 USPQ 459, 467 (1966).

THE INVENTION AS A WHOLE

The invention considered as a whole is best described by the appended claims.

PRIOR ART AS A WHOLE

The prior art to which the invention pertains is typified by the references of record.

DIFFERENCES BETWEEN THE INVENTION AND THE PRIOR ART

Each of the present claims defines unique features and each is individually patentable over the prior art.

The test in reviewing rejections under 35 U.S.C. 103 in which the examiner has relied on teachings of several references, is whether references, viewed individually and collectively, would have suggested the claimed invention to a person possessing ordinary skill in the art, and citing references which merely indicate that isolated elements and/or features recited in the claims are known is not a sufficient basis for concluding that combination of the claimed

elements would have been obvious. In re Kaslow, 217 USPQ 1089 (Fed. Cir. 1983); In re Deminski, 230 USPQ 313 (Fed. Cir. 1986).

Claims 1-16 are patentable under 35 U.S.C. 103(a) over the references of record for the reasons of record and for the reasons that follow.

I. Claims 1 – 3, 8 – 9, and 12 are patentable under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130).

Shimohatubo is a flexographic ink feeding apparatus with a redesigned inner chamber that eliminates acute angles, easing the process of cleaning the doctor blade chamber. Kersch is an automatic cleaning system for cleaning the rotating bodies of a press using a cleaning reservoir pressure container, with pressure generated or relieved by compressed air insertion or removal.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

Claim 1 is distinguished from Shimohatubo and Kersch at least in that it teaches spraying pressurised cleaning liquid into a doctor blade chamber through at least one cleaning nozzle and partial filling of a hydrophore with liquid from a storage tank, a supply system or a water tap by means of a high-pressure pump. No references, taken alone or in combination, teach or suggest these features. The Examiner argues that Shimohatubo teaches that "pressurized cleaning liquid (col. 4, lines 52-53) is sprayed into the chamber through at least one cleaning nozzle (Fig. 2; 21)." That contention is in error.

The lines cited to by the Examiner say nothing about spraying, pressurized cleaning liquid, or a cleaning nozzle. Rather, they describe that "clean water is supplied into the chamber 35 through the conduit 20 and holes 21 in the blade mounting plate 19 by driving a pump 38."

Shimohatubo has nothing to do with pressurized container supplying cleaning liquids. Shimohatubo seeks to solve the problem of acute-angled corners inside doctor blade chambers which has nothing to do with the problem solved by the present invention. "[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the 'subject matter as a whole' which should always be considered in determining the obviousness of an invention under 35 U.S.C. § 103." *In re Sponnoble*, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969).

It is respectfully submitted that the Examiner apparently is confusing the claimed pressurized "liquid" supply with the Kersch "compressed air" supply. However, the two are not the same as the ordinary meaning of the terms indicates.

The Examiner allows that Shimohatubo does not teach or suggest "partial filling of a hydrophore with liquid from a storage tank... by means of a high pressure pump." The Examiner apparently recognizes that Kersch has nothing to do with a doctor blade. Therefore, neither reference teaches or suggests this limitation. The Examiner relies on Kersch and states that "Kersch et al. teaches partial filling of a hydrophore with liquid from a storage tank (Fig. 1:1), a supply system (Fig. 1: 14) or a water tap by means of a high pressure pump (Fig. 1: 14)." There is no basis for that contention in Kersch. In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been

obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983).

The Examiner identifies element 14 of Kersch as a supply system and high pressure pump for partial filling of a hydrophore with liquid. This is incorrect. Element 14 is a changeover valve. "The pressure container 1 can be pressurized from a compressed-air source, not shown, generally from the existing supply system of the press, via an electronically driven changeover valve 14... and can be relieved of pressure via a further pressure line 13 and an electronically driveable changeover valve 15." (Col. 4, ll. 23-28) Kersch operates differently from the present invention and as a result does not describe, teach, suggest, inherently provide nor even hint at a high pressure pump connected to a liquid source for partially filling a hydrophore with pressurized liquid.

In fact, attention is drawn to the present specification, page 2, last paragraph which specifically discusses the problems associated with the Kersch device. Kersch has a standard container that is only connected to a line that feeds compressed air and Kersch advocates that such a line originates from areas of the printing press that can provide compressed air to the container via an electronically drivable changeover valve 14 (V1). See, for example, Kersch, column 4, lines 23-28. Nothing in the entire Kirsch reference even remotely hints at connecting the container 1 to a storage tank, a supply system or a water tap via a high pressure pump as uniquely defined by the present invention. None of the Figures in Kirsch shows a liquid feed line to the container 1. The compressed-air source line is not the claimed high-pressure pump liquid supply line as misunderstood by the Examiner.

In the present invention (Pages 4-5):

"By using the hydrophore, a small high-pressure pump with a capacity reduced with a factor 100 may be used. The pump only needs to have a pumping capacity of 10-12 l/min. This will provide capacity for shots with an endurance of 1/10 or a few tenths of a second and with an amount of about 2-4 litres per shot. The shots are repeated at intervals between 8 and 12 s. The hydrophore may have a content of 6-8 l cleaning liquid, and when about 2 l per shot are used, a sufficiently high pressure is maintained during the entire shot. After each shot, the high pressure pump will build up pressure in the hydrophore.

As cleaning liquid comes from a storage tank or from a supply system, it is only necessary to dimension the hydrophore itself and the short connecting lines to the chamber for high pressure. By disposing shut-off means in the shape of valves or similar between the chamber and the hydrophore, the cleaning cycle may be controlled by actuating the valve.

As mentioned above, the hydrophore may be made for containing a very limited amount of liquid, namely a small multiple of the amount to be used for each cleaning shot. This means that the hydrophore may be constructed with a very small volume with very short pipe connections to the cleaning nozzles. Hereby pressure losses in the pipes are avoided, and it becomes possible to work with a high injection pressure in the chamber so that good distribution of the cleaning liquid and hence efficient cleaning of the chamber is achieved."

Thus, in the present invention, the hydrophore is very small and contains only a small multiple of the amount of liquid used for each cleaning shot. After each cleaning shot, the high pressure pump injects more liquid into the hydrophore and builds up pressure in the hydrophore.

In contrast, Kersch has a pressure container 1 full of a cleaning medium. To build up pressure in the container, compressed air is injected into the container through changeover valve 14 as shown in Figure 1. To relieve pressure in the container, changeover valve 15 can allow some release of air from the container. Valves 14 and 15 do not vent or pump liquid of any kind.

By maintaining a high air pressure, even a very small amount of liquid in Kersch could be

pressurized so that when valves 4 and 5 are opened, cleaning medium flows through fluid feed line 2 to the outlet pipe 3.

The other references cited do nothing to supply what is lacking in Shimohatubo and Kersch. Therefore, the references, taken alone or in combination, do not teach or suggest all the limitations of Claim 1.

Claim 8 is also patentable for similar reasons, as it teaches at least one cleaning nozzle through which pressurised cleaning liquid is sprayed into a doctor blade chamber and a hydrophore connected with a storage tank, supply system or a water tap via a high-pressure pump for transferring a volume of cleaning liquid for partly filling the hydrophore for building up a predetermined pressure in the hydrophore. As pointed out above, Shimohatubo and Kersch do not describe, teach, suggest or even hint at such a feature.

Furthermore, Shimohatubo and Kersch could not be combined. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The Examiner argues that "It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Shimohatubo et al. to provide partial filling of a hydrophore with liquid from a storage tank, a supply system or a water tap by means of a high-pressure pump... as taught by Kersch et al., for the purpose of reducing consumption of ink cleaning agents and associated costs," citing to lines 33-36 of Col. 1. Applicant cannot agree.

The lines cited to by the Examiner have nothing to do with Kersch. Rather, kirsch refers to them as deficiencies of automatic cleaning systems and a detergent recycling system, as known in the art. That has nothing to do with the particular features identified by the Examiner

for combination with Shimohatubo. Furthermore, it appears that Shimohatubo already has an automated cleaning system in the sense described in the background of Kersch. The cleaning system of Shimohatubo is completely different from that of Kersch and indeed appears to be incompatible with that of Kersch. There would be no reason for anyone to substitute the system of Kersch for that of Shimohatubo, short of hindsight reconstruction.

Claims 2 – 3 depend from and share the patentable limitations of Claim 1 and add further patentable features. Claims 9 and 12 depend from and share the patentable limitations of Claim 8 and add further patentable features. Examples are given below.

Claim 2 adds filling a storage tank with cleaning liquid and transferring a volume of cleaning liquid from the storage tank for filling the hydrophore, where each cleaning cycle includes a number of shots with an interval of 5 - 15 seconds, preferably about 10 seconds. The Examiner allows that neither reference teaches or suggests that each cleaning cycle includes a number of shots with an interval of 5 - 15 seconds, preferably about 10 seconds. However, the Examiner has the words “choice of design” in parenthetical. Applicant respectfully requests that the Examiner clarify the law that is being relied on in support of the rejection. For an obviousness rejection, all the claim limitations must be taught or suggested by the applied reference.

Furthermore, the Examiner argues that Shimohatubo teaches filling a storage tank with cleaning liquid and that Kersch teaches transferring a volume of cleaning liquid from the storage tank for filling the hydrophore. It appears impossible for Kersch to teach transferring a volume of cleaning liquid from the storage tank for filling the hydrophore when it does not teach filling a storage tank with cleaning liquid, as the Examiner apparently allows. In any case, Kersch does

not teach or suggest transferring cleaning liquid from a storage tank for filling a hydrophore, as explained above. Citing *In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984), the court pointed out, "the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification". *In re Fritch*, 23 USPQ2d 1783, 1784 (Fed. Cir. 1992).

Claim 3 adds that the hydrophore and the ink chamber are blown through for driving out cleaning liquid at the termination of a cleaning cycle. The references, taken alone or in combination, do not teach or suggest this limitation. The Examiner argues that this limitation is taught by Shimohatsubo in Col. 4, lines 48-58. However, the lines cited to by the Examiner have nothing to do with blowing through a hydrophore and ink chamber to drive out cleaning liquid. That [the prior art] might incorporate elements which could be used in appellants' system does not render appellants' claims obvious when there is no suggestion of using these elements in substantially the same manner as appellants use them. *In re Donovan*, 184 USPQ 414, 421 (CCPA, 1975).

Claim 9 adds that the hydrophore is connected with a source of pressurised air, preferably a standard pressurised air facility, so that the hydrophore and the ink chamber may be blown through for driving out cleaning liquid at the termination of a cleaning cycle. No reference teaches or suggests this limitation. The Examiner cites to Col. 4 of Kersch as teaching this limitation, however, the lines cited have nothing to do with blowing through a hydrophore and ink chamber for driving out cleaning liquid.

Claim 12 adds that a number of inlets and outlets are provided in the chamber, the inlets and outlets being distributed along the length of the chamber, as a row of inlets are disposed at

one side of the chamber while a row of outlets are disposed at the opposite side of the chamber, that the row of inlets are connected with a common ink supply, and that the row of outlets are connected with a common outlet for ink. The references, taken alone or in combination, do not teach or suggest this limitation. The Examiner argues that element 3 of Figure 6 of Kersch meets this limitation. That is in error. Element 3 is a cleaning element and cleaning liquid is expelled from it. Obviousness is tested by what the combined teachings of the references would have suggested to those of ordinary skill in the art. It cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Teachings of references can be combined only if there is some suggestion or incentive to do so. *In re Fine*, 5 USPQ2d 1596, 1599 (Fed. Cir. 1988).

For at least the above reasons, the rejection of Claims 1 – 3, 8 – 9, and 12 under 35 U.S.C. 103(a) over Shimohatubo in view of Kersch is improper and should be withdrawn.

II. Claim 4 is patentable under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130) and further in view of Yamaguchi et al. (US 6,623,564).

Claim 4 depends from and shares the patentable limitations of Claim 1 and adds further patentable features.

As pointed out above Shimohatubo and Kersch do not describe or teach or suggest the claimed invention. Therefore, any further combination with tertiary references will also lead away from the present claims.

Furthermore, Yamaguchi is non-analogous and should be removed as a reference. Yamaguchi is non-analogous art and cannot render the present invention obvious because it is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned. Yamaguchi is not in the field of Applicant's endeavor because it is in the field of recovering synthetic substrates, and not printing unit ink chamber cleaning.

Yamaguchi is not reasonably pertinent to the particular problem faced by Applicant. The particular problem solved by the present application is the problem of providing a technically simple and reliable cleaning system for ink chambers of printing units working according to a method which enables use of a small energy-saving and space saving high-pressure pump, and which facilitate replacing the cleaning nozzles and Yamaguchi has nothing to do with that. Yamaguchi does not, because of the matter with which it deals, logically commend itself to an inventor's attention in considering this problem. See *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). No inventor would ever think to look to Yamaguchi for solutions to printing unit ink chamber cleaning problems.

Because Yamaguchi is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned, it is non-analogous art and should be removed as a reference.

For at least the above reasons, the rejection of Claim 4 under 35 U.S.C. 103(a) over Shimohatsubo in view of Kersch and further in view of Yamaguchi is improper and should be withdrawn.

III. Claim 5 is patentable under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130) and further in view of Steenbergen (US 6,602,566).

Claim 5 depends from and shares the patentable limitations of Claim 1 and adds further patentable features.

As pointed out above Shimohatubo and Kersch do not describe or teach or suggest the claimed invention. Therefore, any further combination with tertiary references will also lead away from the present claims.

Furthermore, Steenbergen is non-analogous and should be removed as a reference.

Steenbergen is non-analogous art and cannot render the present invention obvious because it is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned. Steenbergen is not in the field of Applicant's endeavor because it is in the field of applying a removable printed marking to a container, and not printing unit ink chamber cleaning.

Steenbergen is not reasonably pertinent to the particular problem faced by Applicant. The particular problem solved by the present application is the problem of providing a technically simple and reliable cleaning system for ink chambers of printing units working according to a method which enables use of a small energy-saving and space saving high-pressure pump, and which facilitate replacing the cleaning nozzles, and Steenbergen has nothing to do with that. Steenbergen does not, because of the matter with which it deals, logically commend itself to an inventor's attention in considering this problem. See *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). No inventor would ever think to look to Steenbergen for solutions to printing unit ink chamber cleaning problems.

Because Steenbergen is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned, it is non-analogous art and should be removed as a reference.

For at least the above reasons, the rejection of Claim 5 under 35 U.S.C. 103(a) over Shimohatsubo in view of Kersch and further in view of Steenbergen is improper and should be withdrawn.

IV. Claims 6, 10, and 11 are patentable under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130) and further in view of Figliola (US 3,662,781).

Claim 6 depends from and shares the patentable limitations of Claim 1 and adds further patentable features. Claims 10 – 11 depend from and share the patentable limitations of Claim 8 and add further patentable features.

As pointed out above Shimohatubo and Kersch do not describe or teach or suggest the claimed invention. Therefore, any further combination with tertiary references will also lead away from the present claims.

Furthermore, Figliola is non-analogous and should be removed as a reference. Figliola is non-analogous art and cannot render the present invention obvious because it is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned. Figliola is not in the field of Applicant's endeavor because it is in the field of submerged introduction of a fluid into a body of liquid, and not printing unit ink chamber cleaning.

Figliola is not reasonably pertinent to the particular problem faced by Applicant. The particular problem solved by the present application is the problem of providing a technically simple and reliable cleaning system for ink chambers of printing units working according to a method which enables use of a small energy-saving and space saving high-pressure pump, and which facilitate replacing the cleaning nozzles, and Figliola has nothing to do with that. Figliola does not, because of the matter with which it deals, logically commend itself to an inventor's attention in considering this problem. See *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d

858, 26 USPQ2d 1767 (Fed. Cir. 1993). No inventor would ever think to look to Figliola for solutions to printing unit ink chamber cleaning problems.

Because Figliola is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned, it is non-analogous art and should be removed as a reference.

For at least the above reasons, the rejection of Claims 6, 10, and 11 under 35 U.S.C. 103(a) over Shimohatsumo in view of Kersch and further in view of Figliola is improper and should be withdrawn.

V. Claim 7 is patentable under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130) and Steenbergen (US 6,602,566) and further in view of Figliola et al. (US 3,662,781).

Claim 7 depends from and shares the patentable limitations of Claims 1 and 5, and adds further patentable features that each cleaning nozzle is adapted to open at a pressure between 2 and 12 bar, preferably between 4 and 8 bar.

As pointed out above Shimohatubo and Kersch do not describe or teach or suggest the claimed invention. Therefore, any further combination with tertiary references will also lead away from the present claims.

Furthermore, as explained above an being relied on here without repeating, Steenbergen and Figliola are non-analogous and should be removed as references.

For at least the above reasons, the rejection of Claim 7 under 35 U.S.C. 103(a) over Shimohatubo in view of Kersch and further in view of Steenbergen and Figliola is improper and should be withdrawn.

VI. Claims 13 – 16 are patentable under 35 U.S.C. 103(a) over Shimohatubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130) and further in view of Mayer et al. (US 6,964,792).

Claim 13 is distinguished from the references at least in that it teaches a cleaning nozzle for use in a chamber in a doctor blade, where pressurised cleaning liquid is injected into the chamber through at least one such nozzle.

As pointed out above Shimohatubo and Kersch do not describe or teach or suggest the claimed invention. Therefore, any further combination with tertiary references will also lead away from the present claims.

No references, taken alone or in combination, teach or suggest this feature. The Examiner argues that these limitations are met by element 21 of Shimohatubo. That is in error.

Element 21 of Shimohatubo is a hole in a blade mounting plate. It is not a cleaning nozzle and pressurized cleaning liquid is not injected into a doctor blade chamber through it. Therefore, the references do not teach or suggest all the limitations of Claim 13.

Furthermore, the Examiner allows that a combination of Shimohatubo and Kersch does not teach or suggest a largely mushroom-shaped nozzle body with a stem intended for mounting in the wall of the chamber, and which has a domed top of an elastic material, and furthermore that the nozzle also includes a second nozzle body in the form of a bushing for disposition in an opening in the chamber wall and with a central boring for accommodating the stem of the nozzle body and with through-going openings disposed thereabout, the openings covered by the domed top. Therefore, the Examiner relies on Mayer as teaching these limitations.

However, Mayer does not teach or suggest these limitations. Furthermore, Mayer is non-analogous art and cannot render the present invention obvious because it is neither in the field of

Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned. Mayer should be removed as a reference. Mayer is not in the field of Applicant's endeavor because it is in the field of controlling electrolyte flow for plating, and not printing unit ink chamber cleaning.

Mayer is not reasonably pertinent to the particular problem faced by Applicant. The particular problem solved by the present application is the problem of providing a technically simple and reliable cleaning system for ink chambers of printing units working according to a method which enables use of a small energy-saving and space saving high-pressure pump, and which facilitate replacing the cleaning nozzles, and Mayer has nothing to do with that. Mayer does not, because of the matter with which it deals, logically commend itself to an inventor's attention in considering this problem. See *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). No inventor would ever think to look to Mayer for solutions to printing unit ink chamber cleaning problems.

Because Mayer is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned, it is non-analogous art and should be removed as a reference.

Claims 14 – 16 depend from and share the patentable limitations of Claim 13 and add further patentable features. "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch*, 23 USPQ2d 1783, 1784 (Fed. Cir. 1992), quoting from *In re Gorman*, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). "This court has previously stated that one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art

to deprecate the claimed invention." Id. quoting from *In re Fine*, 5 USPQ2d 1600 (Fed. Cir. 1988).

For at least the above reasons, the rejection of Claims 13-16 under 35 U.S.C. 103(a) over Shimohatubo in view of Kersch and further in view of Mayer is improper and should be withdrawn.

LEVEL OF ORDINARY SKILL IN THE ART

A person having ordinary skill in the art is an artisan being taught the reference teachings.

SUMMARY

Each of the present claims is patentable under 35 U.S.C. 103(a) over the prior art of record.

When considering the present invention as a whole and the prior art to which the invention pertains as a whole, when considering the differences between the present invention and the prior art, and when considering the level of ordinary skill in the art to which the invention pertains, it is clear that the invention would not have been obvious under 35 U.S.C. 103(a) to a person having ordinary skill in the art at the time the invention was made.

CONCLUSION

Reversal of the Examiner and allowance of all the claims are respectfully requested.

Respectfully,



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CLAIMS APPENDIX

Appealed Claims:

1. A method for cleaning the ink chamber of a printing unit, preferably a chamber in a doctor blade, where pressurised cleaning liquid is sprayed into the chamber through at least one cleaning nozzle, characterised by partial filling of a hydrophore with liquid from a storage tank, a supply system or a water tap by means of a high-pressure pump, building up a predetermined pressure in the hydrophore, activation of at least one valve which is disposed between the hydrophore and the cleaning nozzle for injecting at least one shot of cleaning liquid in the ink chamber for executing a cleaning cycle controlled by the activation cycle of the valves.
2. Method according to claim 1, characterised by filling a storage tank with cleaning liquid and transferring a volume of cleaning liquid from the storage tank for filling the hydrophore, where each cleaning cycle includes a number of shots with an interval of 5 - 15 seconds, preferably about 10 seconds.
3. Method according to claim 1, characterised in that the hydrophore and the ink chamber are blown through for driving out cleaning liquid at the termination of a cleaning cycle.
4. Method according to claim 1, characterised in that the cleaning liquid is heated, possibly in the storage tank, before filling into the hydrophore, and that the hydrophore is emptied at each cleaning cycle and is only re-filled with heated cleaning liquid immediately before a new cleaning cycle.
5. Method according to claim 1, characterised in that the predetermined pressure in the hydrophore is between 3 and 30 bar, preferably between 12 and 20 bar and particularly about 16 bar.
6. Method according to claim 1, characterised in that each cleaning nozzle is spring biased towards a closed position, where it covers injection openings in the chamber, and that the pressure in the cleaning liquid overcomes the spring biasing by an injection shot.

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7. Method according to claim 5, characterised in that each cleaning nozzle is adapted to open at a pressure between 2 and 12 bar, preferably between 4 and 8 bar.

8. A system for cleaning an ink chamber of a printing unit, preferably a chamber in a doctor blade, including at least one cleaning nozzle through which pressurised cleaning liquid is sprayed into the chamber, characterised in that it includes a hydrophore connected with a storage tank, supply system or a water tap via a high-pressure pump for transferring a volume of cleaning liquid for partly filling the hydrophore for building up a predetermined pressure in the hydrophore, at least one activatable valve disposed in a connection between the hydrophore and the cleaning nozzle, and which is adapted for opening the connection for injecting a shot of cleaning liquid into the ink chamber, and which is connected with a control for executing a cleaning cycle controlled by the activation cycle of the valves.

9. System according to claim 8, characterised in that the hydrophore is connected with a source of pressurised air, preferably a standard pressurised air facility, so that the hydrophore and the ink chamber may be blown through for driving out cleaning liquid at the termination of a cleaning cycle.

10. System according to claim 8, characterised in that each cleaning nozzle is spring biased towards a closed position where it covers injection openings in the chamber, and that the pressure in the cleaning liquid overcomes the spring biasing by an injection shot.

11. System according to claim 8, characterised in that the hydrophore is tubular and formed in a support profile for the doctor blade or in a section of the wall of the doctor blade in order to have short connecting lines/tubes between the hydrophore and the cleaning nozzles.

12. System according to claim 8, characterised in that a number of inlets and outlets are provided in the chamber, the inlets and outlets being distributed along the length of the chamber, as a row of inlets are disposed at one side of the chamber while a row of outlets are disposed at the opposite side of the chamber, that the row of inlets are connected with a common ink supply, and that the row of outlets are connected with a common outlet for ink.

13. A cleaning nozzle for use in a chamber in a doctor blade, where pressurised cleaning liquid is injected into the chamber through at least one such nozzle, characterised in that it includes a largely mushroom-shaped nozzle body with a stem intended for mounting in the wall of the chamber, and which has a domed top of an elastic material, and furthermore that the nozzle also includes a second nozzle body in the form of a bushing for disposition in an opening in the chamber wall and with a central boring for accommodating the stem of the nozzle body and with through-going openings disposed thereabout, the openings covered by the domed top.

14. Cleaning nozzle according to claim 13, characterised in that the domed top is intended for covering injection openings in the chamber and designed with a radial inner and outer surface which is largely perpendicular to the stem and which is intended for contact with the chamber wall at the mounting of the nozzle in an opening in the wall, and that the radially outer surface is arranged to extend in unloaded condition to a position further down over the stem than the position of the inner surface.

15. Cleaning nozzle according to claim 13, characterised in that the stem is provided with screw thread and adapted to be fastened by screwing into an opening in the chamber wall, and that the domed top has a notch for engaging a tool.

16. Cleaning nozzle according to claim 13, characterised in that it is made of plastic, preferably PVDF.

EVIDENCE APPENDIX

Original application, office actions and references of record.

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RELATED PROCEEDINGS APPENDIX

There are no related proceedings.

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